

RESPONSE TO OFFICE ACTION

A. Status of the Application

No claims have been canceled, withdrawn or added. Claims 1, 7, 10, and 14-15 have been amended. No new matter was introduced. Claims 1-18 remain pending.

B. Clarifying Amendments to Claims 1, 7, and 10

Claims 1, 7, and 10 have been amended in a non-narrowing manner and not in response to any rejection or objection. Applicants amended those claims to correct an inadvertent typographical error. The correction provides more proper antecedent basis for claims 1, 7, and 10.

C. Section 102 Rejection /

Claims 1-4, 6, 10-13, and 15-18 stand rejected under 35 U.S.C. § 102(b) as being allegedly anticipated by W.O. Patent No. 98/10267 to Gert Blankenstein (“Blankenstein”). Applicants respectfully traverse.

1. Independent Claims 1 and 10 are Not Anticipated

Independent claims 1 and 10 both recite, in part, “balancing the dielectrophoretic force and magnetic forces to position the constituents within the chamber.” In a non-limiting example, the Specification discloses:

While magnetophoretic forces are usually positive (*i.e.* attractive) in sign in biological labeling applications, conditions may be chosen to make the dielectrophoretic forces negative in such applications. In this case it is possible for the dielectrophoretic and magnetic forces acting on a particle to oppose one another. If $b_{DEP} < b_{MAP}$ in equations (4) and (5), then it is possible to find a unique value for the distance b from the electrode and magnetrode plane where the forces balance, using equations (1) and (2)...

*See Specification, page 9, lines 20-25 and Table 1; see also, pages 11-12, and 14 (noting that such balancing may be done in presence of *e.g.*, gravitational forces).*

The Office cites page 5, line 29 through page 6 line 3 of Blankenstein as allegedly anticipating balancing the dielectrophoretic force and magnetic forces to position the constituents within the chamber, as required by claims 1 and 10. However, the cited paragraphs disclose that

particles can be positioned in the flow channel by “controlling the flow velocities of the fluid containing particles at the particle inlet of the member and flow velocities of guiding buffers at corresponding inlets.” Nowhere in cited anticipation reference, and particularly the cited paragraphs, does Blankenstein disclose or suggest balancing the dielectrophoretic force and magnetic forces to position the constituents within the chamber.

The Office also relies on the paragraph beginning on page 10, lines 31-38 of Blankenstein as allegedly anticipating claims 1 and 10. This citation, however, does not disclose balancing a dielectrophoretic force and magnetic force to position the constituents within the chamber. The cited paragraph refers to adjusting the field strength to an electromagnet or electrodes. In a first mode the field operates “at a high intensity.” In a second mode, “the field is reduced.” The adjustment of the field strength of either an electromagnet or electrodes does not amount to a disclosure or suggestion of balancing a dielectrophoretic force and magnetic force to position the constituents within the chamber.

As noted above, the cited anticipation reference positions particles by controlling the flow velocity of the fluid containing the particles. *See Summary of Invention*, page 5, lines 32-35 and page 19, lines 9 through 10. The cited anticipation reference does not provide balancing of *any* dielectrophoretic force and magnetic force to position constituents within a chamber, as recited by claims 1 and 10. Because Blankenstein lacks disclosure of explicit elements of the claims, it cannot serve as an anticipatory reference. Applicants respectfully request the removal of the § 102 rejection to claims 1 and 10 and all their respective dependent claims.

2. *Independent Claim 13 is Not Anticipated*

Applicants respectfully assert that the Office has not presented a *prima facie* of anticipation for claim 13 case because no arguments or explanation is proposed for how the cited reference allegedly anticipates all the elements of claim 13. For instance, the Office has not pointed-to or cited where Blankenstein generates a dielectrophoretic force using electrodes to repel collected matter from magnets as recited by claim 13.

Nonetheless, Applicants respectfully submit that Blankenstein does not anticipate claim 13. Referring to FIG. 6 and page 22, lines 18-21, Blankenstein discloses “the magnetic field is adjusted so that magnetic particles 12 are drawn to the inner wall of the micro flow channel 5

close to the electromagnet 8. Upon removal of the current to the electromagnet 8, the particles 12 are redispersed and are rapidly moved to the sorting outlet port 6.” In addition to other differences, there is no generating of a dielectrophoretic force using electrodes in Blankenstein to repel collected matter from the magnets as required by claim 13. In Blankenstein, a magnet appears to be merely turned off, and particles are allowed to fall back into a flow channel.

For at least these reasons, Applicants respectfully request that the current rejection of claim 13 be withdrawn.

3. Independent Claim 15 is Not Anticipated

Amended independent claim 15 now recites, in part, “balancing the dielectrophoretic force and magnetophoretic force to position the sample within the chamber.” Support for this amendment may be found, for example, on page 19, lines 3 through 30 and FIG. 9A of the Specification.

As noted above, Blankenstein does disclose, teach or suggest such balancing.

4. Independent Claim 16 is Not Anticipated

Independent claim 16 recites, in part, “wherein the electrodes and magnetrodes are configured to generate forces that balance one another to displace constituents within the sample to positions within the chamber characteristic of their magnetic and dielectric properties.” Blankenstein does not anticipate claim 16 for at least the same reasons given for claims 1 and 10.

For at least the reasons set forth above, independent claims 1, 10, 13, 15, 16, and their respective dependent claims are not anticipated or otherwise rendered unpatentable. Applicants respectfully request removal of the current § 102 rejections.

D. Section 103 Rejection

Claims 5, 7-9, and 14 stand rejected under 35 U.S.C. 103(a) as allegedly being obvious in view of Blankenstein and U.S. Patent 6,109,119 to Jiang *et al.* Applicants respectfully traverse.

1. *Claim 5 and 7-9 Are Not Obvious*

Blankenstein does not teach or suggest all the limitations of independent claim 1. Jiang does not cure the deficiencies of Blankenstein. For example, neither Blankenstein nor Jiang, separately or in combination, teach or suggest balancing a dielectrophoretic force and magnetic force to position constituents within a chamber as recited by independent claim 1. Independent claim 7 recites a similar limitation and therefore, is not obvious in light of Blankenstein and/or Jiang.

Jiang discloses that “a sample is introduced downstream with respect to the injection point of a first sample-free carrier. The sample is consequently pushed downstream until it is stopped by an opposing flow. Subjecting the sample to opposing flows focuses the sample.” (Column 8, lines 42-46). Disclosure of flow-focusing does not amount to a disclosure or suggestion of the recited balancing, which, among other things, is also missing from Blankenstein. Moreover, there is not a need or desire in Jiang to balance any forces to position a sample within the chamber because the sample is focused by the flow of the sample-free carrier. Therefore, neither Blankenstein nor Jiang teach or suggest all the limitations of independent claims 1 and 7. Applicants respectfully request that the § 103 rejections to claim 5 (a dependent of claim 1), independent claim 7, and its dependent claims (8 and 9) be removed.

2. *Claim 14 is Not Obvious*

Amended independent claim 14 now recites, in part, “balancing the dielectrophoretic force and magnetophoretic force to position the sample within the chamber.” Support for the amendment may be found, for example, on page 19, lines 3 through 30 of the Specification and FIG. 9A.

As noted above, neither Blankenstein nor Jiang, separately or in combination, teach or suggest such balancing. Blankenstein appears to rely on controlling flow velocities and guiding buffers in a channel to position a sample, while Jiang relies on subjecting a sample to opposing flow forces to focus a sample. Applicants respectfully request the removal of the § 103 rejection to claim 14.

E. Double Patenting Rejection

Claims 1-4, 6, 10-13, and 15-18 stand rejected under the judicially created doctrine of obviousness-type double patenting as being allegedly unpatentable over claim 17 of U.S. Patent No. 6,790,330 to Gascoyne *et al.* in view of Blankenstein. Claims 5, 7-9, and 14 stand rejected under the judicially created doctrine of obviousness-type patenting as being allegedly unpatentable over claim 17 of the Gascoyne reference in view of Blankenstein and Jiang.

Applicants are filing a terminal disclaimer attached behind Tab 1. As the Office (and public) should be aware, the filing of a terminal disclaimer does not create any estoppel or presumption regarding the merits of the rejection. *Quad Environmental Tech. Corp. v. Union Sanitary Dist.*, 946 F.2d 870 (Fed. Cir. 1991). The terminal disclaimer addresses this rejection, and Applicants respectfully request its withdrawal.

PETITION FOR EXTENSION OF TIME

Pursuant to 37 C.F.R. § 1.136(a), Applicants petition for an extension of time of two-months up to and including March 28, 2005, in which to respond to the outstanding Action. A check for the small entity fee for a two-month extension of time (\$225.00) is enclosed. Should any additional fees under 37 C.F.R. §§ 1.16 to 1.21 be required for any reason relating to the enclosed materials, or should an overpayment be included, the Commissioner is authorized to deduct or credit said fees to or from Fulbright & Jaworski Deposit Account No. 50-1212/UTXC:625US/MCB.

CONCLUSION

Applicants believe that these remarks fully respond to all outstanding matters for this application. Applicants respectfully request that the rejections of all claims be withdrawn so the claims may swiftly pass to issuance.

Should the Examiner desire to sustain any of the rejections discussed in this Response, the courtesy of a telephone conference between the Examiner, the Examiner's supervisor, and the undersigned attorney at 512-536-3018 is respectfully requested in advance.

Respectfully submitted,



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